

A catalyst used for trimerization of ethylene into 1-hexene is described, which comprises (i) a specific organometallic complex having a neutral multidentate ligand having a tripod structure, (ii) an alkylaluminumoxane, and an optional ingredient selected from:

- (iii) a halogenated inorganic compound,
- (iv) a specific alkyl group-containing compound,
- (v) a combination of a halogenated inorganic compound with a specific alkyl group-containing compound,
- (vi) an amine compound and/or an amide compound, and
- (vii) a combination of an amine compound and/or an amide compound with a specific alkyl group-containing compound.